Portneuf River TMDL Implementation Plan

assembled by:

Pocatello Regional Office
Idaho Department of Environmental Quality
444 Hospital Way, # 300
Pocatello, ID 83201

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Portneuf River Subbasin TMDL Implementation Plan

Caribou/Targhee National Forest

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Introduction

The Clean Water Act, section 303(d), requires states to identify waters within its boundaries where designated beneficial uses are not supported. For streams determined as not supporting designated beneficial uses, each state will establish total maximum daily loadings of identified pollutants with seasonal variations and margins of safety.

There are nine recognized beneficial uses of the waterbodies within the Portneuf subbasin. These include cold water biota, salmonid spawning, primary and secondary contact recreation, and domestic and agricultural water supply. All waterbodies within the Portneuf River subbasin are considered to support industrial water supply, wildlife habitat and aesthetics.

For a waterbody to support its designated beneficial uses, it must meet certain criteria. These criteria are set forth by the state as water quality standards. These standards vary according to the beneficial use and can be either numeric or narrative. The Portneuf River subbasin assessment identified several pollutants that are limiting the support of established beneficial uses within the subbasin. These include sediment, dissolved oxygen, nutrients, organic compounds, flow alteration, oil and grease, bacteria, metals, and temperature. Of these, sediment and nutrients are the two most prevalent pollutants within the Forest boundary.

Once a waterbody is identified and listed as not supporting designated beneficial uses and TMDLs are established, the State must prepare an Implementation Plan. This plan is to identify load allocations and a plan-of-action needed to attain allocated loadings within listed waterbodies. This action plan should include actions to be taken, timelines and expected outcomes. In an effort to cooperate with large land-owners and managers, such as the Forest Service, the State is coordinating the development of Implementation Plans. These individual Implementation Plans will be consolidated into the State's Plan and sent to EPA for concurrence.

Listed Waterbodies

The following are waterbodies identified in Table 22 of the 1999 Waterbody Assessment and TMDL for the Portneuf River Basin.

Stream Name	Boundaries	Pollutant	Beneficial Use Not Supported	Forest Service PWI Watershed
Portneuf River	American Falls Reservoir to Chesterfield Reservoir	Bacteria, nutrients, sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Fort Hall boundary to Interstate 86	Nutrients, sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Interstate 86 to Johnny Creek	Sediment, oil, grease	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Johnny Creek to Marsh Creek	Sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Marsh Creek to Portneuf – Marsh Valley Canal Diversion	Sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	P-MV Canal Diversion to Lava Hot Springs	Sediment, nutrients	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Lava Hot Springs to Downey Canal	Sediment, nutrients, flow alteration	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Downey Canal to Chesterfield Reservoir	Nutrients, sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Portneuf River	Chesterfield Reservoir to headwaters	Sediment	CWB, SS, PCR, DWS, SCR and AWS*	Not within FS boundary
Birch Creek	Headwaters to Marsh creek	Nutrients, sediment	Unknown	19

Cherry Creek	Headwaters to Birch Creek	Sediment, nutrients	Unknown	19
Dempsey Creek	Headwaters to Portneuf River	Sediment	CWB (Lower Reach)	Not within FS boundary
Hawkins Creek	Headwaters to Marsh Creek	Nutrients, sediment	CWB, SS (Lower Reach)	19
Hawkins Reservoir	Hawkins Reservoir	Dissolved oxygen, nutrients	Unknown	Not within FS boundary
Marsh Creek	Headwaters to Portneuf River	Nutrients, sediment	Unknown	Not within FS boundary
Pocatello Creek	Headwaters to Portneuf River	Sediment	Unknown	Not within FS boundary
Rapid Creek	Headwaters to Portneuf River	Sediment	CWB (Lower Reach)	Not within FS boundary
Walker Creek	Headwaters to Marsh Creek	Sediment	CWB (Lower Reach)	19
24 Mile Creek	Headwaters t Portneuf River	Sediment	Unknown	Not within FS boundary

* **CWB** = Cold Water Biota; **SS** = Salmonid Spawning; **PCR** = Primary Contact Recreation; **SCR** = Secondary Contact Recreation; **DWS** = Domestic Water Supply; **AWS** = Agricultural Water Supply.

Forest Service Policy and Direction within the Portneuf River subbasin

The Forest has revised its land management direction within the Caribou portion of the Caribou/Targhee National Forest, which includes the Portneuf River basin. The Revised Plan includes direction for managing watersheds and riparian zones for water quality. This direction is in the form of Goals, Objectives, Standards and Guidelines.

The Forest has also established a separate management prescription area that specifically addresses riparian areas and water quality. This is prescription area 2.8.3 in the Revised Forest Plan. This prescription area is generally 300 ft. on either side of a perennial waterbody, and 50 feet on either side of an intermittent waterbody. This is not an area of exclusion, rather an area of emphasis, where specific Goals, Objectives, Standards and Guidelines are established. This direction applies to all activities within the Aquatic Influence Zone (AIZ) including insect and disease disturbances, fires and fuel treatments, minerals, wildlife, facility occupation, roads, recreation, grazing and timber. The following are examples of the direction found in the Revised Forest Plan that pertains to management of watersheds, riparian areas and water quality.

A Desired Future Condition is a statement of a desired condition to move toward or achieved during the planning period. A Goal is an expressed long-term outcome of

management activities. An Objective is a specific action addressing a Goal. A Standard is used to promote the achievement of the desired future condition. A Guideline is used the same as a Standard, but offers more flexibility to respond to various conditions or management circumstances.

Desired Future Condition

- Public waters are restored where water quality does not support beneficial uses and otherwise are maintained or improved.

Goals

- Design and implement watershed management programs and plans that will restore water quality and watershed function to support beneficial uses.
- Protect waters meeting or surpassing State water quality standards by planning and designing land management activities that protect water quality.
- Cooperate as needed with the State, Tribes, other agencies and organizations to identify 303(d) impaired waterbodies, develop and implement Total Maximum Daily Load (TMDL) and their Implementation Plans for waterbodies influenced by National Forest System management.
- Maintain or restore water quality to a degree that provides for stable and productive riparian and aquatic ecosystems within the capability of the system.
- Participate in cooperative river basin planning efforts. Coordinate management activities to be consistent with these efforts.
- Focus maintenance and restoration efforts within disturbed watersheds that have the greatest potential for restoration of hydrologic function, riparian, water quality and aquatic values.
- Forest roads and trails are managed to maintain or improve watershed condition.
- Riparian and aquatic ecosystems provide water quality suitable for supporting designated beneficial uses.

Objectives

- Within one year of the signing of the ROD, incorporate the riparian grazing standards into livestock grazing permits and annual operating instructions.

Standards

- Within legal authorities, ensure that new proposed management activities within watersheds containing 303(d) listed waterbodies improve or maintain overall progress toward beneficial use attainment for pollutants which led to listing; and do not allow additions of pollutants in quantities that result in unacceptable adverse effects.

- Design, construct, and operate new recreation facilities, including trails and dispersed sites, in a manner that maintains progress toward desired AIZ attributes.

- Aquatic Influence Zones are not included in the suitable timber base and do not contribute to the Allowable Sale Quantity (ASQ).

Guidelines

- Projects in watersheds with 303(d) listed waterbodies should be supported by scale and level of analysis sufficient to permit an understanding of the implications of the project within the larger watershed context.

- Proposed actions analyzed under NEPA should adhere to the State Nonpoint Source Management Plan to best achieve consistency with both Sections 313 and 319 of the Federal Water Pollution Control Act.

- Minimize construction of new transportation routes, evaluate existing routes, and reconstruct or relocate those routes not meeting management goals. Surface gravel should be placed on roads where necessary to reduce rutting, surface erosion and to reduce maintenance costs.

- Avoid constructing roads within the AIZ unless there is no practical alternative.

- Manage existing recreation facilities, including trails and dispersed sites, to minimize adverse impacts and, where feasible, move towards desired AIZ attributes.

- Timber harvest, including fuelwood cutting, is generally not allowed unless:

    - catastrophic events such as fire, flooding, wind, or insect damage result in degraded riparian conditions, and unscheduled timber harvest (salvage and commercial fuelwood cutting) is selected as the most desirable management practice.

    - silvicultural practices are necessary to achieve desired vegetation characteristics and desired AIZ attributes.

Current Watershed Situation, Proposed Management Activities and Direction

The following is a discussion of the current situation, proposed management activities and direction addressing TMDLs, expected effects, and costs of each listed stream within the Forest boundary, or those streams that can be directly affected by activities within the Forest boundary. If specific actions are known at this time, these actions are addressed. Actions would include administration of grazing practices, road maintenance and the like.

Several stream segments within the Forest boundary have been listed. These streams are Birch, Cherry, Hawkins and Walker Creeks. All these streams are listed from the headwaters downstream to the mouth of the drainage. Activities within the Forest boundary that can potentially affect these streams include livestock grazing and recreation. Roads also exist within each of these watersheds. No timber harvesting or mining is currently occurring or expected to occur in the foreseeable future within any of these watersheds.

Birch Creek

-Current Situation-

Birch Creek is listed from the confluence with Marsh Creek to its headwaters. Designated beneficial uses are cold water biota, salmonid spawning, secondary contact recreation and agricultural water supply. Nutrients and sediment have been determined to be impairing water quality. Beneficial uses not supported are undetermined. Birch Creek is a man-made anomaly. The headwaters of Birch Creek are actually Mill Creek, which is within the Forest boundary. Approximately one mile below the Forest boundary, the stream is diverted through a weir, which splits the stream into two equal halves. One half flows north and becomes Birch Creek. The other half flows south and becomes Devil Creek. Birch Creek flows north into the Columbia River basin. Devil Creek flows south into the Great Basin. Activities that occur within the Mill Creek watershed include livestock grazing and recreation.

Properly Functioning Condition and Channel Stability analysis of Mill Creek within the Forest boundary indicate the channel is in good overall condition. The Mill Canyon road (FDR 041) parallels the stream along much of its length, but has little effect on the stream except where the canyon narrows near the Summit Campground. Summit Campground provides camping and nearby trail access for hiking, cross-country skiing, horse back riding and ORVs, including motorcycles, four-wheelers and snowmobiles. There are no current or foreseeable mining or timber harvesting activities within the watershed. A hydroelectric power facility diverts a portion of Mill Creek water on a year-round basis. The intake is just below the Summit Campground. The outlet is near the dividing weir below the Forest boundary. The power company is mandated to maintain a minimum amount of flows in the stream at all times.

Proposed Management Activities and Direction addressing TMDLs

-Background-

Sediment and nutrients have been identified in Birch Creek as limiting water quality. The primary activities within the NFS portion of the watershed that can affect sediment and nutrients are livestock grazing and recreation.

The area is part of the Mill Creek C & H Allotment. The allotment contains 192 AUMs of cattle with a season of use July 1 through August 31 for 94 head. Grazing is conducted on a deferred rotation system, with the mainstem Mill Creek drainage closed to grazing yearlong.

Recreation is the primary use within the Mill Creek drainage. The area is fairly close to major Utah population centers and the campgrounds and trailheads are generally full during the summer months, especially during the weekends. Recent upgrades have been made to the Summit Campground, including new toilet facilities and hardened camp sites. Sites adjacent to Mill Creek have been closed to camping. The combined affect of

campground improvements have probably reduced the amount of sediment and nutrients delivered to Mill Creek. A new trailhead parking lot for the Wrights Creek trail has been relocated away from the stream, out of the riparian area, which has also helped to reduce potential sediment from this source.

The hydroelectric facility takes a portion of Mill Creek flows, but deposits the water back into the stream below the Forest boundary. This facility does not affect sediment or nutrients in Birch Creek.

-Action-

Grazing will continue within the allotment within the foreseeable future but not within the Mill Creek Aquatic Influence Zone (AIZ) itself. The Revised Forest Plan recognizes that livestock grazing can affect water quality and provides specific management direction and utilization standards for uplands and within the AIZ. Previous Forest Plan direction was vague and specific grazing procedures and utilization standards were implemented on an individual allotment basis as part of the Allotment Management Plan. Direction varied between allotments and standards usually did not fully address resource needs and concerns. The revised, literature-based, guidance will be applied uniformly across the Forest. Riparian area direction considers the sensitivity of various channel types to impacts, the condition of the riparian area and stream channel and the presence of other factors, such as 303(d) waterbodies. This direction is designed to maintain conditions where they are considered to be in a satisfactory condition, and improve degraded areas.

Recreation will continue in the Mill Creek drainage into the foreseeable future. If sites are considered to be contributing to sediment or nutrients, corrective measures will be taken to reduce loading.

The road paralleling the stream will continue to be maintained.

The hydropower diversion will continue under FERC and USFS permit requirements.

-Expected Effects-

Implementing the revised livestock grazing standards and guidelines will help to improve overall watershed conditions, which will improve the quality of water being delivered to Birch Creek. The current condition of Mill Creek within the Forest boundary is good to excellent. Streambank erosion is minor, though some side-drainages may be contributing to sediment loading during storm runoff periods. There are no specific estimates of sediment reduction as a result of implementing the new livestock grazing standards and guidelines or improving recreation sites. Whenever riparian areas are improved, vegetation will normally respond first, followed by channel improvements and improvements in water quality.

The campground has already been improved and the Wrights creek trailhead has been moved out of the riparian zone. The combination of these actions has already potentially reduced the amount of sediment and nutrients from these locations, though no specific measurements have been taken.

-Timelines-

When the new grazing standards and guidelines are implemented, improvements in vegetation would be expected within 2-3 growing seasons following implementation.

Improvements to the campground and trailhead have already been completed.

Road maintenance will continue to occur annually.

-Costs-

There are no specific costs associated with this action other than routine grazing, road and recreation administration, maintenance and improvement costs that would normally be associated with livestock grazing, road management, and recreation under the direction provided in the Revised Forest Plan.

-Monitoring-

Birch Creek has listed pollutants of sediment and nutrients. The TMDL for sediment has two target parameters – suspended sediment and depth fines. Suspended sediment is subdivided into two categories: High Flows (springtime runoff) – not to exceed a 14-day average of greater than 80 mg/l; Low Flows (outside the spring runoff period) – not to exceed a 28-day average of greater than 50 mg/l. Depth fines is also subdivided into two categories: Subsurface streambed sediment less than 6.25 mm not to exceed a 5-year mean of greater than 25% by volume in riffles; Subsurface streambed sediment less than 0.85 mm not to exceed a 5-year mean of greater than 10% by volume in streams with salmonid spawning as a beneficial use in riffles. The Nutrients target also has two parts: Nitrogen not to exceed 0.3 mg/l of nitrogen as total inorganic nitrogen; and Phosphorus not to exceed 0.075 mg/l of phosphorus as total phosphorus.

The frequency of monitoring for the parameters suspended sediment, depth fines and nutrients will be once every 2-5 years as time and budgets allow. Since this stream is not listed within the Forest boundary, sampling will not be a priority. Because of the good overall condition of the channel, little channel change is expected. Therefore the suspended sediment and depth fines sampling interval will be every 5 years. Nutrient sampling would occur every 2 years, as budgets allow. Sampling at a greater frequency would probably not show any measurable differences and would not be cost effective. There is a BURP site on Mill Creek within the Forest boundary. It indicates that water quality in Mill Creek is supporting beneficial uses. If a suspended sediment, depth fines or nutrient sample exceeds target standards, repeated sampling will occur as needed.

The location of sampling will be at or slightly above the Forest boundary T12S, R36E, Section 28.

The cost of monitoring and sample analysis is estimated to be:

1 person day per sampling interval (includes travel)	= $200.00
Suspended Sediment (residue, total)	= $9.00 per sample
Depth Fines	= $20.00 per sample
Total inorganic nitrogen	= $25.00 per sample
Total Phosphorus	= $15.00 per sample
Miscellaneous supplies and equipment	= $20.00 per sampling interval
Total Cost per interval	= $289.00

If additional sampling is needed, additional costs per sample will add to the total cost above. This will include salary and travel costs, as well as per sample analysis and equipment costs.

Cherry Creek

-Current Situation-

Cherry Creek is listed from the Birch Creek confluence to the Cherry Creek headwaters. Designated beneficial uses are cold water biota, salmonid spawning, secondary contact recreation and agricultural water supply. Listed pollutants are nutrients and sediment. Beneficial uses not supported are undetermined and need verification. Activities that occur within this watershed that could influence nutrient and sediment loading include livestock grazing and recreation. Within the Forest boundary, the Cherry Creek road (FDR 047) parallels the stream along much of its length. Cherry Creek Campground and trailhead are near the confluence of Left Fork and Middle Fork. These sites provide camping and trail access for hiking, cross-country skiing, horse back riding and ORVs, including motorcycles, four-wheelers and snowmobiles. Trails parallel Left Fork, Right Fork and Middle Fork stream channels. All these roads and trails have a potential to supply sediment to the drainage system. There are no current or foreseeable mining or timber harvesting activities within the watershed. Cherry Creek lies within the Oxford Mountain C&H Allotment.

Proposed Management Activities and Direction addressing TMDLs

-Background-

Sediment and nutrients have been identified in Cherry Creek as limiting water quality. The primary activity within the NFS portion of the watershed that can affect sediment and nutrients is livestock grazing. Roads and motorized trails also exist adjacent to the stream, and could be contributing sediment to the stream. The stream does support a limited cold water salmonid fishery.

-Action-

Grazing will continue within the drainage within the foreseeable future. The Revised Forest Plan recognizes that livestock grazing can affect water quality and provides specific direction and utilization standards to reduce potential impacts to watersheds and riparian areas. Previous Forest Plan direction was vague and specific grazing procedures and utilization standards were implemented on an individual allotment basis as part of the Allotment Management Plan. Direction varied between allotments and standards usually did not fully address resource needs and concerns. The revised, literature-based, direction will provide specific standards and guidelines for livestock grazing in both uplands and riparian areas and will be applied uniformly across the Forest. Riparian area direction considers the sensitivity of various channel types to impacts, the condition of the riparian area and stream channel and the presence of other factors, such as 303(d) waterbodies. This direction is designed to maintain conditions where they are considered to be in a satisfactory condition, and improve degraded areas. As recently as 1995, the Oxford Mountain Cattle Allotment was considered to have problems in compliance with Term Grazing Permit regulations. Cattle that were often left in units

season-long often caused degraded conditions in riparian values. Over the last few years, compliance by grazing permittees has improved and riparian values are beginning to show measurable improvement. Many new structural range improvements (watering troughs, drift fences, etc.) have been installed within the past several years, which have helped to improve livestock distribution. Improving distribution has resulted in a more uniform use of the watersheds, which reduces site-specific impacts, especially within riparian areas. Noxious weed control has been bolstered and where once it was assumed that leafy spurge might take over the watershed, the weed has been brought under control.

The Cherry Creek campground has already been identified as needing to be updated. Proposals have been made to relocate some camp sites away from the riparian area. A final plan for modifying the campground is due to be completed by 2004. A trailhead has also been proposed to be relocated out of the riparian area, reducing potential sediment from this source as well. The entire watershed is heavily used by ORVs. Not only are designated trails being heavily used, but "pioneered" trails are being discovered routinely. ORV management alternatives are also being evaluated by the Ranger District. Maintenance of open trails will be emphasized.

-Expected Effects-

Implementing the revised grazing standards and guidelines will help to improve overall riparian and watershed conditions affected by livestock grazing, which will improve the quality of water being delivered to Cherry Creek and on to Marsh Creek. There are no specific estimates of sediment reduction as a result of implementing the new livestock grazing standards and guidelines. Whenever watershed and riparian conditions are improved, vegetation will normally respond first, followed by channel improvements and improvements in water quality. However, it is expected that watershed and channel bank erosion from livestock can be reduced, with a corresponding reduction in sediment. Improved riparian vegetation can also help filter out overland flows that may contain excess nutrients and sediment, reducing the amount of potential nutrients and sediment from upland sources.

Relocating camp sites away from the riparian zone will assist in reducing erosion/ sediment inputs from these sources. The relocation of the trailhead out of the riparian zone will also assist in reducing overall sediment input into the drainage system.

Managing ORV/ATV use within the watershed and maintaining trails will help reduce erosion/sediment from this source.

-Timelines-

Once new grazing standards and guidelines are implemented, improvements in vegetation should be measurable within a few years. Channels respond much slower and improved channel conditions may require several years to several decades. Cherry Creek is considered to be in moderate overall condition. Measurable improvements in channel conditions are not expected for at least 5 to 10 years.

Campground and dispersed camping sites are expected to be upgraded within the next few years, depending on budgets. Measurable effects are expected immediately after sites within and adjacent to the riparian area are rehabilitated. Maintaining trails will help reduce sediment from this source. Reductions in sediment are nearly immediate where structures are installed. Areas that are revegetated will not respond until vegetation becomes re-established, usually 1-3 growing seasons following seeding.

-Implementation Costs-

There are no specific costs associated with this action other than grazing and recreation administration and improvement costs that would normally be associated with livestock grazing and recreation under the direction provided in the Revised Forest Plan.

The cost of improving campground and dispersed camping sites and trail maintenance is unknown at this time since campsite and trail plans are still being developed.

-Monitoring-

Cherry Creek has listed pollutants of nutrients and sediment. See Birch Creek for pollutant targets. The frequency of monitoring for the parameters suspended sediment, depth fines and nutrients will be once every 2-5 years as time and budgets allow. Since this stream is not listed within the Forest boundary, sampling will not be a priority. Because of the overall condition of the channel, it will take at least 5 years to respond to changes. Therefore the depth fines sampling interval would be every 5 years. Nutrient and suspended sediment sampling would be conducted every 2-5 years, budget depending. Sampling at a greater frequency would probably not show any measurable differences and would not be cost effective. There are no BURP sites on Cherry Creek within the Forest boundary, therefore there is no baseline data. If a suspended sediment or nutrient sample exceeds target standards, repeated sampling will occur.

The location of sampling will be at or slightly above the Forest boundary T13S, R37E, Section 1.

The cost of monitoring and sample analysis is estimated to be:

1 person day per sampling interval (includes travel)	= $200.00
Suspended Sediment (residue, total)	= $9.00 per sample
Depth Fines	= $20.00 per sample
Total inorganic nitrogen	= $25.00 per sample
Total Phosphorus	= $15.00 per sample
Miscellaneous supplies and equipment	= $20.00 per sampling interval
Total Cost per interval	= $289.00

If additional sampling is needed, additional costs per sample will add to the total cost above. This will include salary and travel costs, as well as per sample analysis and equipment costs.

Hawkins Creek

-Current Situation-

The Hawkins Creek watershed is approximately 50 square miles in size, with about 14 square miles within the Forest boundary. Hawkins Creek is listed from its headwaters to the confluence of Marsh Creek. Designated beneficial uses are cold water biota, salmonid spawning, secondary contact recreation and agricultural water supply. Beneficial uses found as not fully supported are cold water biota and salmonid spawning. The main-stem of Hawkins Creek is not within the Forest boundary, but South Fork Hawkins Creek and about a ½ mile segment of Sheep Creek are within the Forest boundary. South Fork joins Hawkins Creek about ¼ mile below the Forest boundary, approximately 1 mile downstream of Hawkins Reservoir. Even though Hawkins Creek is listed as having beneficial uses of cold water biota and salmonid spawning, salmonid habitat is extremely limited throughout the system. Limitations include lack of suitable instream habitat and low streamflows. South Fork Hawkins Creek is a downcut channel, considered to be Non-Functional, with a slight upward trend.

Hawkins Reservoir (located outside the Forest boundary) is also listed. Hawkins Reservoir was built for irrigation water storage and is stocked with rainbow trout for put-and-take fishing. Hawkins Reservoir has been completely drained several times during the summer months over the past decade. Idaho Department of Fish and Game restocks the reservoir with hatchery rainbow trout on an annual basis.

The primary activities within the Forest portion of the watershed are livestock grazing and mining. Only a few roads are within the area. These are FDR 039 adjacent to South Fork (approximately 1 mile) and Sheep Creek road (approximately 1/2 mile).

There are portions of two cattle grazing allotments within the watershed. These are East Daniels and East Elkhorn C&Hs. East Daniels C&H permits 87 head from June 1 to September 30, producing 348 head months. East Elkhorn C&H permits 414 head, producing 1656 head months from June 1 to September 30. In the mid 1990s the Forest recognized that South Fork Hawkins Creek was in a degraded condition. In an effort to help improve overall watershed and water quality conditions within the drainage, livestock grazing was eliminated from the drainage until the condition of the riparian zone improved. In addition, a riparian prescriptive pasture was created allowing only limited grazing under specific conditions. The South Fork of Hawkins riparian pasture was closed to grazing from 1995 through 2001. In 2002, the South Fork riparian pasture was grazed for a period of 5 days with 215 cattle. The specified purpose was to use the cattle as a tool to dislodge seeds from grass seedheads and "plant" the seeds through hoof action. No deterioration of riparian values was observed.

In August 2000, a wildfire burned much of the South Fork Hawkins Creek watershed. Burned Area Emergency Rehabilitation (BAER) funds were requested and received to stabilize the watershed and South Fork riparian area. South Fork riparian area was hydromulched and hay bales were installed adjacent to the stream to trap upland sediment

from entering the stream. Uplands were seeded with a grass mixture to help control upland erosion and sediment.

There are numerous mine claims within the area, none of which are currently active. No water quality deterioration has been attributed to the mining activities.

About 10 miles of roads within the watershed have been closed for resource protection. These closures took effect in the mid 1980s in an effort to reduce erosion from these areas. The closed roads were waterbarred and seeded. The effectiveness of the action is mixed, but visual inspections have indicated that on-site erosion has been reduced overall.

Proposed Management Activities and Direction addressing TMDLs

-Background-

Sediment and nutrients have been identified in Hawkins Creek as limiting water quality. The primary activity within the NFS portion of the watershed that can affect sediment and nutrients is livestock grazing. In an effort to reduce grazing impacts and improve overall water quality and riparian stability, the south Fork drainage was closed to general livestock grazing in 1995. Since that time, only limited grazing has been allowed within the drainage. Some open roads exist within the watershed, but they are not considered to be substantially contributing sediment to Hawkins or Sheep Creek.

-Action-

The Revised Forest Plan recognizes that livestock grazing can affect water quality and provides specific direction and utilization standards. Previous Forest Plan direction was vague and specific grazing procedures and utilization standards were implemented on an individual allotment basis as part of the Allotment Management Plan. Direction varied between allotments and standards sometimes did not fully address resource needs and concerns. The revised guidance is literature-based and will be applied uniformly across the Forest. When grazing is allowed, new standards and guidelines will provide specific direction for livestock management, in both the uplands and riparian areas. Riparian area direction considers the sensitivity of various channel types to impacts, the condition of the riparian area and stream channel and the presence of other factors, such as 303(d) waterbodies. This direction is designed to maintain conditions where they are considered to be in a satisfactory condition, and improve degraded areas where they exist. Implementing the revised standards and guidelines will help to improve overall watershed and riparian conditions in the South Fork drainage, which will help to improve the quality of water being delivered to Hawkins Creek.

-Expected Effects-

Implementing the revised grazing standards and guidelines will help to maintain an upward trend of watershed and riparian conditions in the South Fork and Sheep Creek

drainages, which will improve the quality of water being delivered to Hawkins Creek. The grazing direction is designed to maintain conditions where they are considered to be in a satisfactory condition, and improve degraded areas. There are no specific estimates of sediment reduction as a result of implementing the new livestock grazing standards and guidelines. Whenever watersheds and riparian areas are improved, vegetation will normally respond first, followed by channel improvements and improvements in water quality. However, it is expected that channel bank erosion can be reduced by at least ½, with a corresponding reduction in sediment.

Only a limited segment of Sheep Creek is within the forest boundary. The road paralleling the stream may be contributing some sediment to the system, but it is considered to be minor when compared to sediment inputs from the privately owned lands above and below the Forest boundary. The road is, and will continue to be, maintained by the County.

-Timelines-

Improvements in vegetation should be measurable within a few years. Channels respond much slower and it may take several years to decades before any measurable improvements are realized. South Fork Hawkins Creek is deeply downcut and is in poor, but improving, condition. Improved channel conditions are not expected for at least 5-10 years, and may take decades to recover to a functioning condition.

No substantial changes in Sheep Creek are expected. Implementing revised grazing standards and guidelines should help reduce minor impacts from grazing, but changes are not expected to make any measurable improvements in the Sheep Creek system.

-Implementation Costs-

There are no specific costs associated with this action other than routine grazing administration and improvements costs that would normally be associated with livestock grazing under the direction provided in the Revised Forest Plan.

-Monitoring-

To assist in reducing pollutant loading, the Portneuf TMDL provides targets for the various parameters. Hawkins Creek has limiting pollutants of sediment and nutrients. See the Birch Creek watershed for TMDL pollutant targets.

The frequency of monitoring for the parameters suspended sediment, depth fines and nutrients will be once every 2-5 years. Because of the condition of the channel, it will take at least 5 years to see any measurable responses to changes. Therefore the depth fines sampling interval will be every 5 years. Nutrients and suspended sediment will be sampled every 2-5 years, depending on budget. Sampling at a greater frequency would probably not show any measurable differences and would not be cost effective. There are no BURP sites on South Fork, therefore no baseline data. Therefore, initial sampling of

suspended sediment and nutrients will take place once during high and low flows 2003. If a suspended sediment or nutrient sample exceeds target standards, repeated sampling will occur.

The location of sampling will be at or slightly above the Forest boundary T11S, R35E, Section 1.

The cost of monitoring and sample analysis is estimated to be:

1 person day per sampling interval (includes travel)	= $200.00
Suspended Sediment (residue, total)	= $9.00 per sample
Depth Fines	= $20.00 per sample
Total inorganic nitrogen	= $25.00 per sample
Total Phosphorus	= $15.00 per sample
Miscellaneous supplies and equipment	= $20.00 per sampling interval
Total Cost per interval	= $289.00

If additional sampling is needed, additional costs per sample will add to the total cost above. This will include salary and travel costs, as well as per sample analysis and equipment costs.

Walker Creek

-Current Situation-

Walker Creek is listed from the Marsh Creek confluence to the Walker Creek headwaters. The listed pollutant is sediment. The beneficial use not fully supported is cold water biota in the lower reach. The upper approximately ½ of the watershed is within the Foest boundary. The lower ½ is on private lands. Activities that occur within the Forest in this watershed that could influence sediment include livestock grazing and recreation. Within the Forest boundary, the Walker creek road parallels the stream along much of its length. This road had been closed and stabilized, but was re-opened during the summer of 2002 to gain access to a wildfire that was burning in the area. Following the fire, the road was again closed. The road, in the past, was a primary source of sediment and channel instability in the drainage. The valley is extremely narrow, and the road encroaches on the stream in numerous places. In some places, the roadbed is actually lower than the streambed. There have been several times within the past decade when water diverted from the channel and flowed down the road, scouring the roadbed and delivering fines, sands and gravels to the channel. The situation has since been stabilized with earthen barriers. If, sometime in the future high flows occur within the drainage, flows could break through the barriers and again divert water down the roadbed. Anticipating this, waterbars have been constructed in the roadway to re-divert flows back into the stream channel, minimizing the distance the water can flow down the road. A motorized ATV trail also crosses through the drainage. However, sediment impacts from this trail are minimal. A bridge has ben installed at the mainstem crossing site that keeps vehicles out of the stream. There are no current or foreseeable mining or timber harvesting activities within the watershed. A timber sale on private land within the drainage occurred in the late 1990's. This sale has been completed and access routs through the Forest have been stabilized. It is not known if lands within the private land have stabilized from the sale activities.

Two livestock grazing allotments are within the Walker Creek drainage area. These are the Pocatello C&H and the Old tom birch Creek S&G allotments. The Pocatello allotment contains 1186 permitted cow/calf pairs. Grazing is allowed within the allotment from June 1 through October 10 annually, with livestock rotated on a pasture-by-pasture basis. The Old Tom allotment contains 700 ewe/lamb pairs, permitted from June 15 thru August 15 annually. Grazing is controlled by herding. Current impacts within the drainage by both sheep and cattle are considered minor.

Proposed Management Activities and direction addressing TMDLs

-Background-

Sediment has been identified in Walker Creek as limiting water quality in the lower portion of the drainage. This portion is located below the Forest boundary on privately owned lands. The affected beneficial use is cold water biota. The primary activities

within the NFS portion of the watershed that can affect sediment are livestock grazing and dispersed recreation.

The watershed area is within part of two allotments. Grazing is proposed to continue in both allotments.

Recreation is a minor use within the drainage. A trailhead parking lot for the Walker Creek trail is located away from the stream, out of the riparian area.

-Action-

Grazing will continue within the allotments within the foreseeable future. The Revised Forest Plan recognizes that livestock grazing can affect water quality and provides specific management direction and utilization standards for both upland and riparian grazing. Previous Forest Plan direction was vague and specific grazing procedures and utilization standards were implemented on an individual allotment basis as part of the Allotment Management Plans. Direction did not fully address resource needs and concerns. The revised, literature-based guidance will be applied uniformly across the Forest. This new direction is designed to maintain watershed conditions where they are considered to be in a satisfactory condition, and improve degraded areas.

Limited dispersed recreation will continue in the Walker Creek drainage into the foreseeable future. No specific localized impact sites have been identified to date, but if found, corrective measures will be taken to reduce erosion and sediment loading.

The Walker Creek road will continue to be closed.

-Expected Effects-

Implementing the revised livestock grazing standards and guidelines will help improve overall watershed conditions, which will improve the quality of water being delivered to Walker Creek. The current condition of Walker Creek within the Forest boundary is fair to good, depending on the reach. The stream has been impacted by the road, which has been a major source of sediment in the past. The closure and rehabilitation of the road has reduced a major source of sediment in the upper drainage. Effects of livestock grazing on watershed/riparian stability within the drainage are considered to be minor. There are no specific estimates of sediment reduction as a result of implementing the new livestock grazing standards and guidelines, or rehabilitating the road. Whenever watersheds and riparian areas are improved, vegetation will normally respond first, followed by channel improvements and improvements in water quality.

-Timelines-

When revised grazing standards and guidelines are implemented, improvements in overall watershed conditions should occur within the next few years. The major source of past sediment, the road, has already been closed and stabilized.

-Costs-

There are no specific costs associated with this action other than grazing and recreation administration, maintenance and improvements costs that would normally be associated with livestock grazing and recreation, under the direction of the Forest Plan.

-Monitoring-

Walker Creek has a listed pollutant of sediment. See the Birch Creek Watershed for TMDL pollutant targets. The frequency of monitoring for the parameter suspended sediment will be once every 3-5 years, as time and budgets allow. Since the affected beneficial use is downstream of the Forest boundary, sampling will not be a priority. Normally, channel responses take 5-10 years before effects can be readily measured. Therefore, the depth fines sampling interval will be every 5 years. Sampling at a greater frequency would probably not show any measurable differences and would not be cost effective. If a target standard is exceeded, repeated sampling will occur.

The location of sampling will be at or slightly above the forest boundary, T8S, R35E, Section 13

The cost of monitoring and sample analysis is estimated to be:

1 person day per sampling interval (includes travel)	= $200.00
Suspended Sediment (residue, total)	= $9.00 per sample
Depth Fines	= $20.00 per sample
Miscellaneous supplies and equipment	= $20.00 per interval
Total Cost per interval	= $249.00

If additional sampling is needed, additional costs per sample will add to the total cost above. Costs include salary and travel costs, as well as per sample analysis and equipment costs.

Tentative Monitoring Schedule for the Portneuf River Basin

Stream Name	Parameter	Monitoring Date
Birch (Mill) Creek	Suspended Sediment	-Spring 2003; Fall 2003 Spring 2005; Fall 2005 Spring 2007; Fall 2007
	Depth Fines	-Fall 2003; Fall 2008
	Nutrients	-Spring 2003; Spring 2005 Spring 2007
Cherry Creek	Suspended Sediment	-Spring 2004; Fall 2004 Spring 2006; Fall 2006 Spring 2008; Fall 2008
	Depth Fines	-Fall 2004; Fall 2009
	Nutrients	-Spring 2004; Spring 2006 Spring 2008
Hawkins Creek	Suspended Sediment	-Spring 2003; Fall 2003 Spring 2005; Fall 2005; Spring 2007; Fall 2007
	Depth Fines	-Fall 2003; Fall 2008
	Nutrients	-Spring 2003; Spring 2005; Spring 2007
Walker Creek	Suspended Sediment	-Spring 2004; Fall 2004 Spring 2007; Fall 2007
	Depth Fines	-Fall 2004; Fall 2009